

question of effects of different levels of fertility upon economic development arises. An examination of these effects shows that "the total output would grow faster with reduced fertility than with high fertility. . . . With high fertility, a smaller total product must be divided among more consumers than would be the case under low fertility. . . . The more rapid increase in number of consumers restrains the rise of total output in several ways", e.g. a larger number of consumers tends to increase the fraction of the output devoted to consumption and to reduce savings; it also forces the use of savings for social purposes (housing for instance) which raise output less than other uses.

In Part V the question is asked whether the findings for India also apply to other low income and high fertility areas where initial economic conditions are different, and the very important conclusion is reached that "the differential advantage to be gained by reduced fertility is in the same general range whether the country is large or small, has just begun to reduce its mortality or has already made major advances in health, is relatively self-sufficient or rather heavily engaged in trade, and whether development is following a socialistic or a capitalistic pattern". Obviously this conclusion, based as it is on an elaborate analysis of the highest technical competence, is of the utmost relevance to the making of plans having as their aim the emergence of these huge areas of low income and high fertility out of their present intolerable conditions towards a more prosperous future.

A. M. CARR-SAUNDERS

Chandrasekhar, S. *Infant Mortality in India*. London, 1959. Allen & Unwin. Pp. 175. Price 20s.

THIS BOOK should be read by all interested in the social and economic progress of the under-developed countries and of India in particular. Its title does not adequately indicate the scope of the book and much of its interest derives from the related topics which are considered in order to give a truer appreciation of India's problem.

To give the reader the statistical background the first chapter—roughly a third of the book—is devoted to Indian census and vital statistics.

Trustworthy statistics are an essential starting point for any study of infant mortality and "trustworthy" is certainly not the word to describe the census and vital statistics of India. At a Sanitary Conference held at Lucknow in 1914, a speaker summing-up on vital statistics said "the only certain thing we know about vital statistics at present is that they are highly inaccurate. They are more inaccurate in some areas than in others. We do not know the extent of their inaccuracy. We can only guess". This is as true to-day as it was then.

At the base of the machinery for collecting census and vital statistics is the *chowkidar*, the village headman, a lowly paid official charged with many duties. The figures reported are often collected at second and third hand and are based on the recollections of this illiterate *chowkidar*. If we are to believe the judge quoted by Sir Josiah Stamp* some thirty years ago, this official reports "what he damn pleases". In addition to the inaccuracies of collection, population statistics suffer from the lack of speed with which the administrative machine works, the transient nature of many village settlements and homes, and the populace's distrust of government action. There was, until 1951, no permanent Registrar General in India. In the circumstances it is really a triumph that India has ever had a census count at all.

The registration of vital events—births, marriages and deaths—is not compulsory in many parts of India, but even in those areas where compulsion obtains there are errors of omission because of the failure to enforce the law. In few areas is there any reporting of marriage statistics and, in the absence of an adequate medical service, statistics of cause of death and morbidity are woefully inadequate: 70 per cent of all deaths occur without the attendance of a physician.

Chapter II is devoted to the measurement of infant mortality and in particular to the advantages of the refined measures, based on the cohort approach, over the conventional measures. Brief details of calculation methods are given. This discussion is purely academic, as reliable Indian data for the calculation of conventional infant mortality rates, let alone the additional data for

* *Some Economic Factors in Modern Life*, 1929. P. 62.

more refined rates do not exist. Except for the definitions which are given early on, the general reader can omit most of this chapter. It will, however, be a most useful chapter for the student of demography since accounts from many sources, as yet not generally included in the demography textbooks, are brought together in a convenient form.

In Chapter III the author discusses infant mortality in India and places it in its world setting. Phenomenal progress in reducing infant mortality has been achieved in the countries of the north-western hemisphere, and in north-western Europe, Australia and New Zealand; by comparison, India has made very slow progress and has several decades' leeway to make up. Professor Chandrasekhar relies partly on the statistics published for the provincial and central government areas in India and partly on a number of surveys carried out by official and semi-official agencies, and he concludes (rather uncertainly, it would seem to the reviewer) that there has been a definite downward trend. Yet despite the improvement that has taken place, every year some 2 million babies out of 15 million born die before they reach the age of one year (i.e. 120 infant deaths per 1,000 live births). If the infant mortality of England and Wales prevailed, some 1 million of these babies could be saved every year.

Professor Chandrasekhar also demonstrates that Indian communities within the same city can have widely diverging infant mortality rates. The Hindus, constituting the overwhelming majority of the population of Bombay, had an infant death rate of about 300 in 1946-47 while the Parsees, an educated and relatively well-to-do group with a way of life approaching the Western, had a rate of seventy.

Chapters IV and V, devoted to the causes of infant mortality and methods of reducing the scourge, are the most interesting in the book. The author discusses the cause of infant deaths under the headings: biological, economic, and cultural and social. Among the biological factors influencing mortality which he includes is the general level of fertility—too frequent childbirth undermines the mother's health and produces weak offspring—and the mother's age at childbirth: infant deaths are more frequent

when the mother is very young or when she is relatively old.

A number of American and European studies have singled out poverty as the major factor responsible for a high infant mortality rate and the author concludes that the lessons learnt elsewhere regarding economic factors are applicable to India.

Cultural and social factors are particularly important. Under this heading is included infanticide, but as this is now illegal the author is unable to assess its significance as a factor causing infant deaths. The religious belief (held with some fervour in India, particularly among Hindus) that a woman at the time of childbirth is ceremonially unclean is the source of a number of unhealthy taboos regarding confinement, the lying-in-room, infant clothing and infant feeding. Professor Chandrasekhar quotes at length from authors who have described these practices, including the role of the Dai, the untrained indigenous midwife—accounts of the ignorance, superstition and uncleanness at birth which make most depressing reading.

The author then indicates how the problem of reducing infant mortality should be tackled. One obvious requirement is for more and better statistics so that the true magnitude of the problem can be assessed. The author urges the need for family planning so that pregnancies can be spaced further apart, with no unwanted children: wanted children would be better cared for and the mother of fewer children would have more strength to care for the children that she has. Antenatal and postnatal care of the mother and education in mothercraft are other requirements. The government's measures in the First and Second Five Year Plans are outlined. The author concludes, however, that the basic problem is the economic one: the knowledge exists but resources are inadequate, and he makes a plea for priority to be given to the expansion of infant and maternal services.

An extensive bibliography is included which will be of considerable value to those interested in the studies covered. The author has, perhaps, quoted rather too extensively from the sources he cites so that there has been some repetition, but such passages have nevertheless served to underline the conclusions reached. There are

occasional peculiarities of style: these can be attributed to the fact that the author's mother tongue is not English, and they in no way detract from the book. There are also a few minor misprints. It is to be hoped that the book will be widely read and that it will play a significant part in expediting action along the lines for which Professor Chandrasekhar makes such eloquent pleas and which would be some recompense to the author for the considerable labour that has gone into the book.

C. J. THOMAS

Francis, Roy R. (Editor). *The Population Ahead*. Minneapolis, 1958. Minnesota University Press. London, Oxford University Press. Pp. x + 160. Price \$30.

THIS VOLUME IS the verbal offspring of the Second Symposium on Population Problems at the University of Minnesota, which was held in 1957, nine years after the first. There are chapters by nine contributors, and there are comments from six further participants in the conference.

There is much of value and much of interest, in this volume; and much too that is not new. There are notable sentences, both revealing of conditions in the United States and stimulating of further thought.

Karl Sax has written one of the best sections, on "The Genetic Future of Mankind". He is constrained to point out (p. 91) "Even in this country no government employee and few deans of medical colleges would dare, at least publicly, to advocate birth control as a part of a public health programme. Few social workers would risk their jobs by suggesting that some of the 'underprivileged' are suffering from bad heredity". Sax quotes Muller with approval (p. 95) to the effect that "The saving of a life does not automatically justify its production of offspring, for the chief criterion on which to base decisions in the planning of parenthood would be the welfare of the descendants themselves". Sax goes on "But a program of 'negative eugenics' could do much to alleviate the unnecessary burden resulting from irresponsible reproduction by those who are already a burden to society and to themselves". And (p. 97) he concludes "It is not enough that man be freed

from starvation and disease; he must also be freed from ancient creeds and dogmas which are so prevalent in the world to-day".

Frederick Osborn has pertinent things to say about "The Population Ahead". He speaks of a population of optimal size and observes that it is a difficult concept for scientist, politician and ordinary people alike. He therefore discusses what he regards as a more practical alternative concept, that of the "optimum rate of growth". But surely the difficulty of understanding an "optimal" population resides in the usual neglect to point out that the optimum will differ according to the criteria held to be of importance, whether economic, dietary, military or in the realms of "the good life". Some urgent thought is needed on the, admittedly much oversimplified, question of "What are people for?"

Yet it must sadly be confessed that whatever the high intrinsic merit of this symposium volume, its editor is not truly being fair to the reader. It is stated (p. vii) "The specialists who were assembled for the symposium were urged to forswear the technical jargon of their disciplines and to use the colloquial speech of the rest of us". It is thus clear that the well-being of the listeners was a consideration of worth. The printed words are seemingly but little different from the words which emerged from the speakers' mouths, and they have, again sadly, the defects of their origin. Here are too many words, too swirling an array of sentences, for the reader's easy comprehension: soon his zeal is overwhelmed. The tactics of holding a reader's attention are different from those of maintaining the concentration of a listener. The objective of printing a symposium such as this is surely to tempt and to hold the reader. Turgidity must be refined by editorial art, or the reader seeks elsewhere. And that is a pity for this volume in fact contains much of value.

G. C. L. B.

RADIATION

Blatz, Hanson (Editor-in-Chief). *Radiation Hygiene Handbook*. New York, 1959. McGraw-Hill. Pp. xix. 23 sections and index. Price £10 13s. 0d.

A HANDBOOK IS, according to one dictionary, "a small book or treatise such as may easily be